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On a Nearly Complete Lizard Skull from the Oligocene of Nebraska.

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THROUGH the courtesy of Mr. Handel T. Martin, assistant curator in charge of the Paleontological Museum of the University of Kansas, I have been given the privilege of studying and describing the most perfect cranium of an extinct anguid lizard that has yet been found in North America.

The specimen is practically free from distortion, and consists of the essentially complete skull and lower jaws, articulated with the anterior cervicals and with much of the protective osseous covering of both head and neck preserved *in situ*. The value of the specimen has been greatly enhanced by its skillful preparation, a very delicate piece of work, accomplished after many days of close application on the part of Mr. Martin, who is to be congratulated on having so successfully executed this difficult task. The specimen was found in the Oligocene deposits of Hat Creek Basin in western Nebraska, by Mr. E. Raymond Hall, a member of the Kansas University Paleontological Expedition of 1922, led by Mr. Martin.

In 1873, on rather fragmentary materials, the late Prof. E. D. Cope[1] established the genus and species *Peltosaurus granulosus*, a lacertilian reptile from the Oligocene deposits in northeastern Colorado. Like many other extinct forms described from fragmentary specimens, *Peltosaurus* has stood for half a century without further knowledge of its skeletal characteristics. It was, therefore, of great interest to find that the Kansas specimen is referable to this little known genus and species.

1. Paleont. Bull., No. 5, 1873, p. 5.

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In the course of a monographic study of the lizards of North America, on which I am now engaged, all available Sauria material found in North America have been assembled in the United States National Museum, and among these are a half dozen skulls of *Peltosaurus,* but the Kansas University specimen is the best skull of the genus that has yet been discovered. It supplements the others so fully that from a study of all it has been possible to work out the complete details of the skull structure, as well as much concerning the arrangement of its scutellation.

Since a full description of the cranium will be published in my forthcoming monograph, it seems unnecessary to here call attention to any but the more interesting features.

Viewed from above, the skull is triangular, broad behind, with a bluntly rounded muzzle. It has a greatest length from the tip of the nose to the posterior end of the squamosal of about 48 millimeters, a greatest width of about 28 millimeters, and greatest vertical height with the lower jaws of about 19 millimeters.

Viewed from the side (see Pl. XV, Fig. 1), the skull is of moderate height, with the top flattened, and the nose strongly inclined. It is quite evident that in life the top and sides of the entire head were almost completely covered by symmetrical osseous scutes whose outer surfaces have a granular ornamentation. Many of these scutes are missing, especially those from the sides. The skull is of the normal lacertilian type, with a single parietal, perforated by a pineal foramen. The frontal is single, the nasals distinct, and premaxillary single. A slender columelli cranii is present, and a nearly perfect palate. It is the first specimen of Peltosaurus to have the palate preserved, and this adds greatly to the importance of the specimen. It is shown that the pterygoids and palatines are well separated along the median line, and that there was a single row of small teeth on the pterygoid.

The dentition is pleurodont. The dental formula is: Maxillary teeth, 16; premaxillary, 8; and dentary, 21. The teeth are closely placed with subcylindrical shafts. Their apices are bluntly wedge shaped, with the cutting edge in the longer axis of the jaw. The inner bevel of the crowns is much longer than the outer, and its surface is sometimes worn concave. Under the glass are seen delicately parallel wrinkling that runs at right angles to the cutting edge on the crown surfaces.

The osseous scutes of the body are arranged in rows encircling the

neck, one row overlapping the other. The scutes on the head are symmetrically arranged, and an interoccipital is constantly present.

All of the above features are in accord with its inclusion in the family Anguidæ to which *Peltosaurus* is now definitely referred. The important structural features of the genus and species *Peltosaurus granulosus*, observed for the first time in the Kansas University specimen, are as follows: Correct profile and contours of the skull; complete structure of the palate; presence of pterygoid teeth; presence of a tabulare; presence of a columelli cranii; complete brain case; arrangement of dermal scutes of the neck and throat.

EXPLANATION OF PLATE XV.

FIGS. 1 to 3. Skull and dermal scutes of *Peltosaurus granulosus* Cope. No. 1208, Kansas University Museum. Reproduced from photographs. All figures about twice natural size.

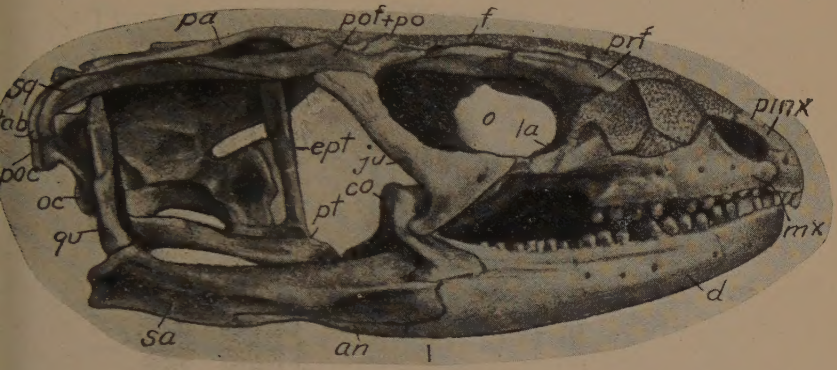
FIG. 1. Skull and lower jaws; viewed from the right side.

FIG. 2. Skull viewed from above.

FIG. 3. Dermal scutes covering neck; superior view. This block joins the back of the skull.

a, Anterior end of block which joins back of the skull; *an*, angular; *co*, coronoid; *d*, dentary; *ept*, epipterygoid; *f*, frontal; *ju*, jugal; *la*, lachrymal; *mx*, maxillary; *o*, orbit; *oc*, occipital condyle; *pa*, parietal; *pmx*, premaxillary; *poc*, paraoccipital process, *pof*+*po*, postfrontal + postorbital; *prf*, prefrontal; *pt*, pterygoid; *qu*, quadrate; *sa*, surangular; *sq*, squamosal; *stf*, supratemporal fossa; *tab*, tabulare.

PLATE XV.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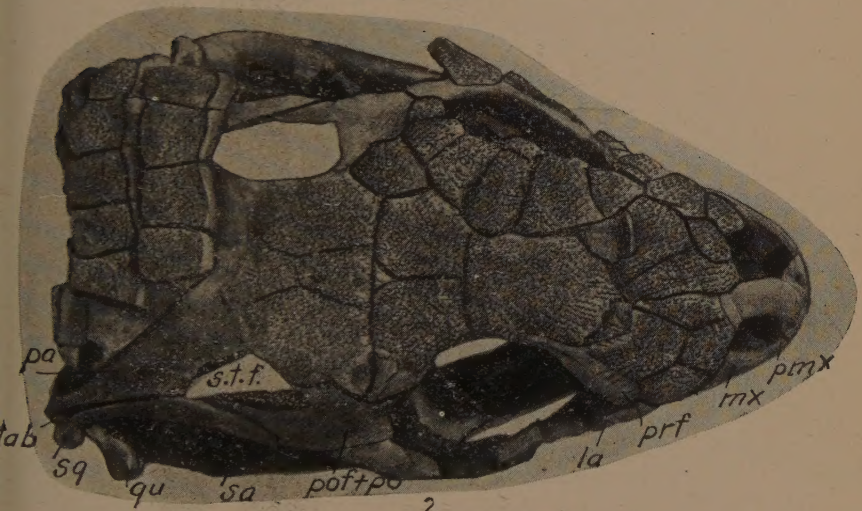
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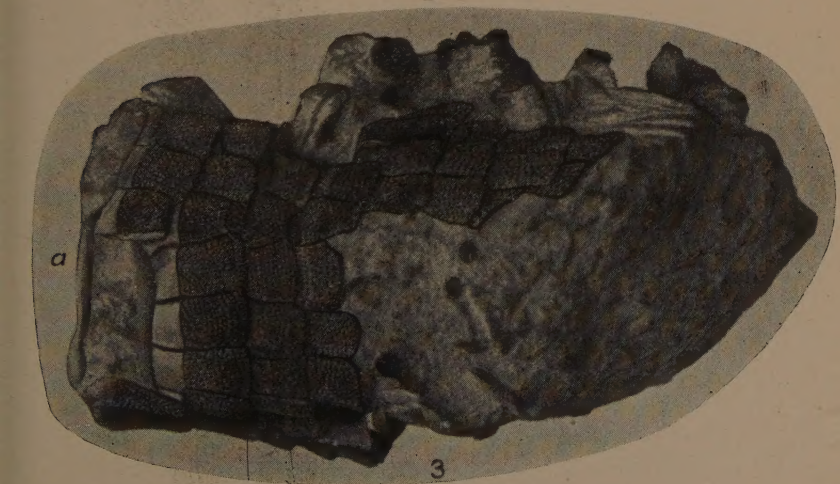
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